



Pediatric laparoscopic transgastric cystgastrostomy

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ABSTRACT

We present an unusual case of a pediatric pancreatic pseudocyst. Due to its rare incidence in the pediatric population, there is little literature about the effectiveness of potential treatment options. The patient was treated with laparoscopic transgastric cystgastrostomy with good results. This technique appears to be a safe and viable option for the pediatric patient population. Pancreatic pseudocysts are rare entities in the pediatric population and, as such, can lead to questions about appropriate management. We present a case report and discuss management options.

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1. Case report

Pancreatic pseudocysts are rare complications of pancreatitis in the pediatric population. They are often treated non-operatively, with good outcomes [1]. Traditionally in adults, pseudocysts with size greater than 6 cm and duration longer than 6 weeks have required surgical intervention [1,2]. The etiology of the pseudocyst may also affect management, with nontraumatic causes requiring surgery more often than traumatic causes [3]. When an intervention is required, open surgery for drainage has been the gold standard. However, various other modalities, including percutaneous, endoscopic, and laparoscopic drainage have been seen as reasonable alternatives. For pediatric patients, little is known about the effectiveness of these treatment options.

The patient was a 7-year-old female with history of lupus on steroid treatment who was admitted for acute pancreatitis. On admission, she was noted to have abdominal pain, fever, nausea and vomiting. Her labs showed a lipase level of 1706 U/liter and CT scan showed moderate ascites and pancreatic edema (Fig. 1). The patient was managed supportively for her pancreatitis, as well as pleural and cardiac effusions, and discharged home.

Two weeks later, the patient presented again with abdominal pain and elevation of lipase, which coincided with restarting a calorically dense diet. A CT abdomen/pelvis showed an 8 cm fluid-

filled structure, consistent with a developing pseudocyst (Fig. 2). The patient was again managed supportively and discharged home.

Six weeks later, after the pseudocyst had matured, the decision was made to perform a diagnostic laparoscopy and laparoscopic cystgastrostomy. In the operating room, the initial incision was made in the umbilicus and a 5 mm trocar was placed. The peritoneum was insufflated and surveyed under direct vision. A large pancreatic pseudocyst was noted in the left upper quadrant, adherent to the posterior stomach, confirming previous CT findings. The stomach was then insufflated with CO₂ through a nasogastric tube, and two Prolene stay sutures were placed through the skin, on the stomach, under direct vision. The stomach was pulled up to the abdominal wall with these sutures. Then two ports, a 5 mm and a 12 mm, were placed directly through the skin and into the stomach under direct vision. From this point, insufflation was switched to the stomach, and the peritoneum was deflated.

Once in the lumen of the stomach, the large pseudocyst was clearly seen to be bulging into the posterior wall. An aspiration needle was placed into the bulge to confirm the location. A hook cautery was used to open the posterior wall of the stomach and this opening was enlarged using 2 vascular loads with an Endo-GIA stapler. The camera was advanced into the cyst and it was confirmed to be without septations. The cyst cavity was irrigated copiously and no abnormalities were noted within.

The ports were then removed from the stomach and the peritoneum was again insufflated. The 12 mm and 5 mm stomach port sites were closed with interrupted 3-0 vicryl sutures and reinforced with Lembert stitches. The peritoneum was irrigated and the fascia

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Fig. 1. Initial CT scan showing moderate ascites and peripancreatic edema (arrows) due to acute pancreatitis.



Fig. 2. CT scan prior to surgery showing an 8 cm pseudocyst abutting the wall of the stomach (arrows) eight weeks after the initial episode of pancreatitis.

of the epigastric port site was closed. The skin was then closed using subcuticular sutures.

The patient's postoperative course was unremarkable and was discharged home tolerating a general diet. An abdominal ultrasound 2 months later showed complete resolution of her pseudocyst (Fig. 3).

2. Discussion

Pancreatic pseudocysts in the pediatric population are usually a result of acute injury to the pancreas from trauma or pancreatitis. Because of the relatively rare incidence of pancreatitis in children, development of pseudocysts are also uncommon. Available literature addresses management in adult patients, but studies in children have been limited.

One review showed that about a third of pediatric pancreatic pseudocysts had symptomatic resolution with conservative management, however the rest required an intervention [3]. Due to the

morbidity related to laparotomy and cystgastrostomy, less invasive techniques have been reported [4]. Advances in radiologic imaging and surgical techniques have provides various options for treatment, including external and internal drainage [5]. Percutaneous and endoscopic drainage have been well-described options for pediatric pancreatic pseudocysts, however these procedures may lead to recurrence or inadequate drainage, especially with viscous pseudocyst fluid [6]. Other potential complications include intestinal perforation and stent migration or leakage [7].

Laparoscopic drainage of pancreatic pseudocysts combines a minimally invasive technique with complete drainage [8,9]. Using an intraabdominal stapler provides a secure anastomosis of adequate size. Closure of the stomach port sites requires sufficient laparoscopic skills, but should not be a limiting factor. Similar techniques have been reported in the adult population with good results [10,11]. As was shown in our patient, this technique appears to be a safe and viable option for the pediatric patient population.



Fig. 3. Ultrasound 2 months post-surgery showing normal pancreas with complete resolution of pseudocyst.

3. Conclusion

For the rare cases of pancreatic pseudocysts in pediatric patients that require intervention and are anatomically suitable, laparoscopic transgastric cystgastrostomy may be a reasonable treatment option.

Conflicts of interest

None.

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